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10/026,961	12/27/2001	Young Hun Ha	8733.524.00	7359
30827	7590	03/28/2005		
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER LANDAU, MATTHEW C	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,961

Applicant(s)

HA ET AL.

Examiner

Matthew Landau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 10-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 15, 17, 18, 20 and 22 is/are rejected.
- 7) ☒ Claim(s) 5, 16, 19 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation “a pixel electrode of an adjacent pixel region extends over the storage electrode” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification lacks antecedent basis for “a second region offset and parallel to the gate line”, “having non-contiguous portions at respective ends of the storage electrode”, and “at the second region of the storage electrode exclusive of the first protective layer”.

Claim Objections

Claims 1, 6, and 15 are objected to because of the following informalities:

Regarding claim 1, the limitation “a second region offset and parallel to the gate line” is objected to. It is suggested this limitation be changed to read, “a second region offset from and parallel to the gate line”. Claims 6 and 15 have the same problem.

Regarding claim 15, the limitation “patterned on non-contiguous portions at respective ends of the storage electrode” is objected to. It is suggested this limitation be changed to read, “having [[patterned on]] non-contiguous portions at respective ends of the storage electrode” (or something similar).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-5 and 15-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the limitation “exclusive of the first protective layer” renders the claim indefinite. According to Merriam-Webster’s Collegiate Dictionary (tenth edition), the phrase “exclusive of” is defined as “not taking into account”. The instant specification does not use this terminology, much less provide any special definition of the phrase. The dictionary definition does not provide any guidance as to what structure feature Applicant intended to claim by using the limitation “exclusive of”. Therefore, it is unclear how this limitation further defines the claimed invention. Note that claim 15 has similar problems.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

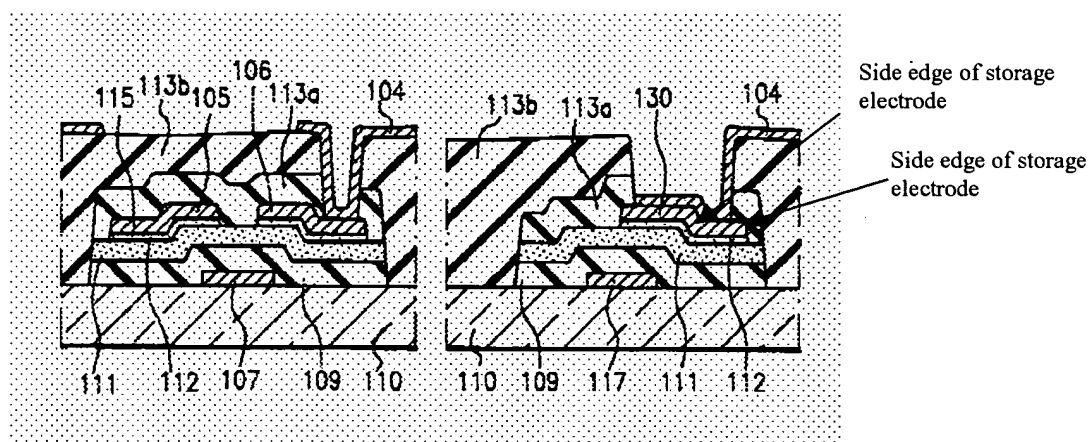
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Han et al. (US Pat. 5,926,235, hereinafter Han).

Regarding claim 6, Figures 4 and 5I of Han disclose a liquid crystal display device including a data line 115 supplied with a data signal, a gate lines 117 supplied with a scanning signal, a pixel electrode 104 for driving a liquid crystal cell, and a thin film transistor for responding to the scanning signal to switch the data signal to the pixel electrode, the device

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comprising: a storage electrode 130 having a first region (left side as shown in Figure 5I) overlapping the gate line to form a storage capacitor, and a second region (right side as shown in Figure 5I) offset and parallel to the gate line; and the pixel electrode covering an upper surface and side edges of the storage electrode, wherein the storage electrode is directly connected to the pixel electrode at the second region of the storage electrode. A marked-up version of Figure 5I is provided below for clarification.



Regarding claim 7, Figures 4 and 5I of Han disclose the gate line 117 formed on a substrate 110; a gate insulating film 109 formed on the substrate to cover the gate line; and a first semiconductor layer 112 formed on the gate insulating film. The product-by-process limitations “simultaneously patterned with the storage electrode” does not structurally distinguish the claimed invention over Han.

Regarding claim 8, Figures 4 and 5I of Han disclose a gate electrode 107 connected with the gate line 117 on said substrate 110; a gate insulating film 109 on said substrate; a second semiconductor layer 111/112 on said gate insulating film; a source electrode 105 and a drain

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electrode 106 on said second semiconductor layer; a protective layer 113a on said gate insulating film; and the pixel electrode 104 on said protective layer.

Regarding claim 9, Figure 5I of Han discloses the second semiconductor layer 111/112 includes an active layer 111 and an ohmic contact layer 112. The limitations “the active layer being patterned simultaneously with...” and “the ohmic contact layer being patterned simultaneously with...” are product-by-process limitations that do not structurally distinguish the claimed invention over Han.

Claims 1-4, 6-8, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US Pat. 6,091,466, hereinafter Kim'466).

Regarding claim 1, Figures 4 and 5F of Kim'466 disclose a liquid crystal display device including a data line 123 supplied with a data signal, a gate lines 113 supplied with a scanning signal, a pixel electrode 141 for driving a liquid crystal cell, and a thin film transistor for responding to the scanning signal to switch the data signal to the pixel electrode, the device comprising: a storage electrode 151 having a first region (right side as shown in Figure 5F) overlapping the gate line to form a storage capacitor, and a second region (left side as shown in Figure 5F) offset and parallel to the gate line; a first protective layer 137 having non-contiguous portions at respective ends of the storage electrode in a layer between the storage electrode and the pixel electrode at the second region of the storage electrode exclusive of the first protective layer; and a second protective layer 137 formed between a gate insulating film 117 and the pixel electrode (portion of 137 between drain electrode 131 and pixel electrode 141). Note that the portions of protective layer 137 above the first and second regions of the storage electrode (right

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and left sides) (as shown in Figure 5F) are not directly touching. Therefore, at least these portions can be considered “non-contiguous”.

Regarding claim 2, Figure 5F of Kim’466 discloses the gate insulating film 117 on a substrate 101 in such a manner to cover the gate line; and a first semiconductor layer 133a/135a between the gate insulating film and the storage electrode.

Regarding claim 3, Figure 5F of Kim’466 discloses the first protective layer 137 is formed at side edges of the storage capacitor.

Regarding claim 4, Figures 4 and 5F of Kim’466 disclose a gate electrode 111 contacting the gate line 117 on the substrate 101; a second semiconductor layer 133/135 on the gate insulating film; and a source electrode 121 and a drain electrode 131 on the second semiconductor layer.

Regarding claim 6, Figures 4 and 5F of Kim’466 disclose a liquid crystal display device including a data line 123 supplied with a data signal, a gate lines 113 supplied with a scanning signal, a pixel electrode 141 for driving a liquid crystal cell, and a thin film transistor for responding to the scanning signal to switch the data signal to the pixel electrode, the device comprising: a storage electrode 151 having a first region (right side as shown in Figure 5F) overlapping with the gate line to form a storage capacitor, and a second region (left side as shown in Figure 5F) offset and parallel to the gate line; and the pixel electrode 141 covering an upper surface and side edges of the storage electrode (Figure 5F), wherein the storage electrode is directly connected to the pixel electrode at the second region of the storage electrode.

Regarding claim 7, Figures 4 and 5F of Kim’466 disclose the gate line 113 formed on a substrate 101; a gate insulating film 117 formed on the substrate to cover the gate line; and a first

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semiconductor layer 135a formed on the gate insulating film. The product-by-process limitation “simultaneously patterned with the storage electrode” does not structurally distinguish the claimed invention over Kim’466.

Regarding claim 8, Figures 4 and 5F of Kim’466 disclose a gate electrode 111 connected with the gate line 113 on said substrate 101; a gate insulating film 117 on said substrate; a second semiconductor layer 133/135 on said gate insulating film; a source electrode 121 and a drain electrode 131 on said second semiconductor layer; a protective layer 137 on said gate insulating film; and the pixel electrode 141 on said protective layer.

Regarding claim 20, the product-by-process limitation “wherein the first protective layer is simultaneously formed...” does not structurally distinguish the claimed invention over Kim’466.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 17, 18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim’466 in view of Kim (US Pat. 6,262,784, hereinafter Kim’784).

Regarding claim 15, as best the examiner can ascertain the claimed invention, Figures 4 and 5F of Kim ‘466 disclose a first substrate 101; a gate line 113 and a data line 123 over the substrate, the data line crossing the gate line to define a pixel region; a thin film transistor having

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source and drain electrodes (131 and 121) at the crossing of the gate line and data line; a storage electrode 151 having a first region (right side as shown in Figure 5F) over the gate line, and a second region (left side as shown in Figure 5F) offset and parallel to the gate line; a pixel electrode 141 over the storage electrode; a first protective layer 137 having non-contiguous portions at respective ends of the storage electrode in a layer between the storage electrode and the pixel electrode, wherein the pixel electrode directly connects to the storage electrode at the second region exclusive of the first protective layer; a second protective layer 137 formed between a gate insulating film 117 and the pixel electrode (portion of 137 between drain electrode 131 and pixel electrode 141). Note that the portions of protective layer 137 above the first and second regions of the storage electrode (right and left sides) (as shown in Figure 5F) are not directly touching. Therefore, at least these portions can be considered "non-contiguous". Kim'466 does not explicitly disclose a second substrate with a liquid crystal layer between the first and second substrates. Figure 3 of Kim'784 discloses a liquid crystal layer 190 formed between first and second substrates (100 and 200). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Kim'466 for the purpose obtaining a fully functional liquid crystal display device.

Regarding claim 17, Figure 5F of Kim'466 discloses a storage capacitor is formed between the storage electrode 151 and the gate line 113 and wherein the first protective layer 137 overlaps a portion of the storage capacitor.

Regarding claim 18, Figure 5F of Kim'466 discloses a storage capacitor is formed between the storage electrode 151 and the gate line 113 and wherein the first protective layer 137 overlaps a lower edge of the storage capacitor.

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Regarding claim 22, the product-by-process limitation “wherein the first protective layer is simultaneously formed...” does not structurally distinguish the claimed invention over Kim’466.

Allowable Subject Matter

Claims 5, 16, 19, and 21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 5 and 21, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including the active layer is patterned simultaneously with the second protective layer and the ohmic contact layer is patterned simultaneously with the source electrode and the drain electrode.

Regarding claim 16, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including a pixel electrode of an adjacent pixel region extends over the storage electrode.

Response to Arguments

Applicant's arguments filed January 10, 2005 have been fully considered but they are not persuasive.

In response to Applicant’s arguments regarding Han that “the first passivation layer 113a and second passivation layer 113b cover the upper and side surfaces of the storage electrode”, as

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stated in the above rejection, the pixel electrode 104 covers an upper surface and side surfaces of the storage electrode 130 (see also the figure provided above that shows the “side surfaces” covered by the pixel electrode, wherein the slanted surface is considered a “side surface”). It is respectfully pointed out that the term “covering” does not necessarily imply contact. Therefore, as shown in Figure 5F, the right side of the storage electrode is covered by the pixel electrode.

In response to Applicant’s arguments regarding Kim’466 that “the pixel electrode fails to contact the storage capacitor electrode 151 in a second region”, as stated in the above rejection, it is considered that the right portion of electrode 151 (shown in Figure 5F) is considered to be the first region and the left portion of electrode 151 (as shown in Figure 5F) is considered to be the second region. Since the pixel electrode 141 contacts both these portion/regions, the claim limitation is met. Furthermore, since the two portions/regions are not touching, it can be considered that they are non-contiguous.

Applicant’s arguments regarding the rejection of Han in view of Kim’784 are moot in light of the new grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

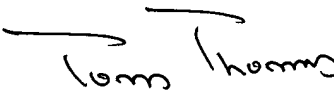
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.


TOM THOMAS
SUPERVISORY PATENT EXAMINER

Matthew C. Landau

Examiner

March 21, 2005